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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,444	09/23/2003	Jiang Hsieh	135487CT (15051US01)	2336
23446	7590	10/14/2005	EXAMINER	
MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661			KIKNADZE, IRAKLI	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,444	HSIEH ET AL.	
	Examiner	Art Unit	
	Irakli Kiknadze	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-20 is/are allowed.
- 6) ☒ Claim(s) 1-3, 12-15, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 4-11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/3/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/23/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu (US Patent 6,118,846).

With respect to claims 1-3, Liu teaches a method for improved image data acquisition, the method comprising:

forming an initial estimate of a malfunctioning cell in an array of detector rows using cells in a same detector row and projection view as the malfunctioning cell (column 1, line 59 – column 2, lines 7 and lines 25-40) by an interpolation of a signal of the malfunctioning cell, wherein the interpolation comprises summing a product of interpolation coefficients and signals of channels of in the same detector row and projection view as the malfunctioning cell (column 10, lines 25-33; claim 1);

and adjusting the initial estimate according to an accuracy of estimates performed on at least one of a nearest pair of neighboring detector rows, wherein each

Art Unit: 2882

member of the pair of rows is an equal distance above or below the detector row with the malfunctioning cell, wherein at least one of the members has a good cell. (see abstract; claim 3).

With respect to claim 12, Liu teaches a method for error detection in an image detector array, the method comprising: comparing average readings between adjacent cells over all projection views for a channel to identify one or more malfunctioning cells (see abstract; column 5, lines 52-67).

With respect to claim 13, Liu teaches exposing detector cells directly to an x-ray beam without an object to be imaged in the x-ray beam; measuring a difference between a first reading from a detector cell and at least second and third readings from neighboring cells; and using the difference between the first, second, and third readings to identify a malfunctioning cell (column 4, lines 45-67 and column 9, lines 10-32).

With respect to claim 14, Liu teaches storing a position of the malfunctioning cell (column 5, lines 32-36).

3. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Mendis et al. (US Patent Application Publication (US 0030394 A1)).

With respect to claim 1, Mendis teaches a method for image data acquisition, the method comprising: forming an initial estimate of a malfunctioning cell in an array of detector rows using cells in a same detector row and projection view as the malfunctioning cell, wherein a detector cell is located in a detector row containing multiple channels; and adjusting the initial estimate according to an accuracy of

estimates performed on at least one of a nearest pair of neighboring detector rows, wherein each member of the pair of rows is an equal distance above or below the detector row with the malfunctioning cell, wherein at least one of the members has a good cell (paragraphs [0007]-[0010]).

With respect to claim 2, Mendis teaches that the initial estimate comprises an interpolation of a signal of the malfunctioning cell (paragraph [006]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (US Patent 6,118,846) as applied to claim 12 above, and further in view of Suzuki (JP 11027523 A).

With respect to claim 15, Liu teaches claimed invention except for generating an alert identifying the one or more malfunctioning cells. Suzuki teaches a method for detecting and identifying the malfunctioning cells in an image detector array comprising generating an alert by alarm generating unit (127) identifying the one or more malfunctioning cells (see abstract). It would have been obvious to one of ordinary skill in art at the time the invention was made to generate the alert as suggested by Suzuki in

the method of Liu, since such a modification would inform an operator that a detector element, such as, a cell, detector or DAS channel, and/or a detector array should be repaired or replaced.

6. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (US Patent 6,118,846)

With respect to claim 21, Liu teaches a method for reducing errors in image data acquisition, the method comprising: examining one of a cell in an imaging system; mapping a cell column to optimize opportunities for error correction; identifying at least one of a malfunctioning channel; and applying a correction scheme to reduce an error due to the at least one of a malfunctioning channel (see abstract; column 4, lines 45-67; claims 1 and 3). Liu is silent about mapping an application-specific integrated circuit. A typical imaging system uses an array of cells to detect an object and then reconstruct and display the detected image. The array includes multiple detector rows. Each detector row includes multiple detector cells, with each detector cell connected to a different data acquisition system (DAS) channel or DAS application-specific integrated (ASIC). It would have been obvious to one of ordinary skill in art at the time the invention was made to provide mapping of the parts of the detector including the application-specific integrated circuit in the method of Liu, since such a modification would allow to optimize opportunities for correcting (examining not only the malfunctioning cells and channels but also the application-specific integrated circuit (ASICs) related to (DAS)) the entire image data acquisition system.

With respect to claim 21, Liu teaches estimating a value of the a malfunctioning channel performing a same estimation on rows adjacent to a row including a cell connected to a malfunctioning channel; and using a difference between the estimating and the performing steps to refine the value (claim 11).

Allowable Subject Matter

7. Claims are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claims 4-11, prior art fails to teach or make obvious a method for data acquisition comprising an adjusting step calculating a weight average of estimates from the pairs of neighboring detector rows as claimed in combination with all elements of the base claim 1.

With respect to claims 16-20, prior art fails to teach or make obvious an imaging system comprising an image processing system, wherein the image processing system adjusts the signal based on a weighted average of first and second difference signals produced using the method of interpolation with at least two neighboring rows in the image detector array in the projection view as claimed in combination with all elements of the claim 16.

Conclusion


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is 571-272-2493. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571-272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Irakli Kiknadze
October 14, 2005

IK


EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER